

## Frequency of bla<sub>KHM-1</sub>, bla<sub>IMP-1,2</sub> and bla<sub>SPM-1</sub> genes in clinical isolates of metallo $\beta$ -lactamase producing *Pseudomonas aeruginosa* in hospitalized burned patients in Ghotbeddin Shirazi Hospital

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### \*Abstract

**Background:** Metallo- $\beta$ -lactamase (MBL) producing *Pseudomonas aeruginosa* is an important gram negative opportunistic bacterium in hospitals which its increasing number is of clinicians' concerns.

**Objective:** The aim of this study was to evaluate the frequency of bla<sub>IMP-1</sub>, bla<sub>IMP-2</sub>, bla<sub>SPM-1</sub> and bla<sub>KHM-1</sub> genes in clinical isolates of MBL producing *Pseudomonas aeruginosa* in hospitalized burned patients in Ghotbeddin Shirazi Center.

**Methods:** This cross-sectional study was conducted in 210 burn wound samples from 2012 to 2013. Sensitivity of confirmed *Pseudomonas aeruginosa* was examined for standard antimicrobial agents using disk diffusion method. Detection of MBL producing isolates was performed by the double disk synergy test (DDST) and the desired genes were detected by PCR. Data were analyzed using Chi-square test.

**Findings:** By the phenotypic methods, 42 isolates (20%) were identified as *Pseudomonas aeruginosa* that were resistant to the most studied antibiotics including Carbapenem (100%) and were only sensitive to Colicitin (100%). 26 isolates (61.9%) were identified as MBL producing *Pseudomonas aeruginosa*. 9 isolates (34.61%) carried the bla<sub>IMP-2</sub> and bla<sub>KHM-1</sub> genes. The bla<sub>IMP-1</sub> and bla<sub>SPM-1</sub> genes were not found in any of the isolates.

**Conclusion:** With regards to the results, it is suggested to periodically study the reasons for antibiotic resistance in each center.

**Keywords:** *Pseudomonas aeruginosa*, Beta-lactamase IMP-1, Burns, Hospitals

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